

Remarks

The Examiner has rejected claims 2 and 7-17 under 35 USC 102(e) as being clearly anticipated by, or in the alternative, under 35 USC 103(a) as being obvious over ITO et al (US 6,548,219).

The applicants have canceled claim 7, and amended claim 2. New claim 18 has been added. Support for all the amendments exists in the specification and no new matter has been added.

The presently amended claims now describe a composition comprising a photoacid generator and a fluorinated polymer, where the fluorinated polymer is a reaction product of polymer containing an aliphatic monocyclic fluoroalcohol unit with at least one compound capable of functionalizing the fluoroalcohol unit with an alkyloxycarbonylalkyl group of structure $-(CR_3R_4)p(CO)OR_5$, where R_3 and R_4 are independently H, F, (C_1-C_8) alkyl, (C_1-C_8) fluoroalkyl, cycloalkyl, cyclofluoroalkyl, $(CR_3R_4)p(CO)OR_5$, R_3 and R_4 may combine to form an alkylspirocyclic or a fluoroalkylspirocyclic group, R_5 is H or an acid labile group, and $p=1-4$, further where the fluorinated polymer in the composition has a monocyclic structure, and further where the polymer containing the monocyclic fluoroalcohol unit is selected from structures I to VIII and where in these structures at least one of R_a , R_b , R_c and R_d is a fluoroalkyl group. A polymer with the backbone comprising a fluoroalkyl group and with an attached alkyloxycarbonylalkyl group is not disclosed in the prior art. Furthermore, the present invention shows (Example 1) that the alkyloxycarbonylalkyl group attached to the monocyclic polymer is thermally stable relative to the traditional acid labile groups used with monocyclic polymers, a fact which is not obvious from the prior art.

Support for the polymer containing groups Ra, Rb, Rc and Rd, where at least one of them is a fluoroalkyl group is present on page 12, lines 13, where the possible substituents on the cyclic structure can be fluorine, alkyl, fluoroalkyl.

As pointed out by the Examiner, Ito describes in column 5, lines 1-17, fluorinated norbornene copolymer. A norbornene copolymer is based on a multicyclic unit in the backbone of the polymer. The present polymer, which is contained in the photoresist composition, has a monocyclic unit formed in the backbone of the polymer and so is clearly different from Ito's polymer. Ito discloses specifically a multicyclic norbornene polymer and makes no mention of a monocyclic polymer or any relationship between a norbornene polymer and a monocyclic polymer. Reading Ito's patent one of ordinary skill in the art would not know that a monocyclic polymer would provide properties sufficient for it to function in a photoresist. The entire disclosure of Ito focuses on polymers containing the norbornene moiety and there is no teaching that would lead one of ordinary skill in the art to perform any further reaction on the norbornene ring, since the primary object of Ito's patent is to "address the above-described need in the art by providing novel substituted norbornene fluoroacrylate copolymers suitable for use in the lithographic photoresist compositions." (column 2, lines 34-37).

It is unclear to the applicants how one skilled in the art would have the motivation to form monocyclic polymers from Ito. The applicants further believe that where the monocyclic polymers contained in the composition comprise a fluoroalkyl group in the backbone of the polymer, as in the present invention, such polymers are not anticipated by any teaching prior to the filing of the application.

The new claim 18 refers to polymers described in Figure 4 in the specification.

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In view of the above explanation and remarks, the present application is believed to be in condition for allowance, and reconsideration of it is requested. If the Examiner disagrees, he is requested to contact the agent for Applicants at the telephone number provided below.

Respectfully submitted,



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